cially suggest to the Faculties of our Colleges that they may, with advantage, place it in the lists of authorized text-books upon institutes and anatomy.

E. R.

ART. XXVII.—*Lectures on Surgery*. By JAMES SPENCE, F.R.S.E., Professor of Surgery in the University of Edinburgh, etc. Part II. 8vo. pp. xxii., 237–633. Edinburgh: Adam and Charles Black, 1869.

THIS, which is the only part of Prof. Spence's work which we have received, contains thirty-nine lectures, numbered Lecture XXXV. to Lecture LXXIII. inclusive, and is accompanied with an appendix of illustrative cases occupying over forty pages. It is likewise adorned with sixteen lithographic plates, some of which are coloured. The subjects discussed in the present volume are diseases of bones, including osteitis and periostitis, necrosis, caries, curvature of the spine (Pott's disease), rickets, and mollities ossium; diseases of joints, arthritis. anchylosis, hydrops articuli, loose cartilages, gelatinous degeneration, ulceration of cartilage, hip disease, excision of joints; affections of bursæ; fractures and dislocations; affections of muscles and tendons, wryneck, club-foot; injuries and diseases of veins, varix and varicose veins, wounds of arteries, the ligature, collateral circulation, torsion, acupressure, aneurism, etc. From this brief recapitulation, our readers can judge of the interest and importance of the topics concerning which our author writes, and it is needless to say that the opinions on these topics of a surgeon so eminent and so justly esteemed as Prof. Spence, must possess, as his opinions, a certain degree of value without regard to their intrinsic merit. We regret, however, to be obliged to confess that, in saying this, we have exhausted all the commendation which we can honestly bestow on the volume.

We look in vain for new information upon any points of surgical practice which are at present in dispute among surgeons, while the remarks upon those matters which have been long settled are at least neither clearer nor more forcible than are to be found in any of the text-books with which we are all familiar. Indeed, upon a good many topics of which we might expect to find a full exposition, our author manifests indifference, if not ignorance: thus, with reference to torsion, after a brief reference to its use by Amussat, Prof. Spence adds: "Torsion has recently been revived, and attempted to be re-introduced as a substitute for the ligature or acupressure. It answers well enough for small vessels, and I frequently use it. Past experience, however, has shown that we cannot safely trust to it in the larger arteries. In the present day the twisting is continued till the twisted portion comes off." Surely these sentences do not fairly represent either the practice or the recorded successes of the modern advocates of torsion, whether at Guy's Hospital, at Cambridge, or at Edinburgh. Again, with regard to dislocations, the following paragraph will scarcely convey any new information, at least on this side of the Atlantic: "Recently a procedure termed reduction by manipulation has been recommended by Dr. Reed (*sic*) of Rochester, U. S., and has proved successful in several cases." The treatment of fractured thigh by weight extension is not even alluded to, though one might think, since the publication of Dr. Hartshorne's researches,[1] that it was at least old enough to merit our author's attention. We might quote additional instances, but the above are perhaps sufficient; on the other hand, it is but just to say that the author's directions for treatment are usually judicious, and his theoretical views, if not quite up to date, such, probably, as will satisfy the majority of practical surgeons.

It is, perhaps, hardly fair to pronounce an opinion of a book which is not completed; but, judging from the specimen before us, we greatly fear that the publication of Prof. Spence's lectures will neither extend his own reputation, nor advance the cause of surgical science generally. The student will not obtain from them a just idea of surgery as it is, nor will the busy practitioner find them stored with either the learning of ages or the novelties of the day; we cannot commend Prof. Spence's work to our readers either as a text-book or as a volume of reference.

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[1] See Nos. of this Journal for April, 1869, pp. 338–346, and for July, 1869, pp. 278–282.

The book is very neatly printed, and some of the plates are really quite handsome illustrations. J. A., Jr.

ART. XXVIII.—*On the Connection between Chemical Constitution and Physiological Action.* Part I. On the Physiological Action of the Salts of the Ammonium Bases, derived from Strychnia, Brucia, Thebaia, Codeia, Morphia, and Nicotia. By Dr. A. CRUM BROWN and Dr. THOMAS R. FRASER. (The paper for which the Makdougall-Brisbane prize was awarded; biennial period 1866–68). From the Transactions of the Royal Society of Edinburgh. Vol. XXV. Edinburgh: printed for the Society, by Neill & Co., 1868. 4to. pp. 53.

The Same. Part II. On the Physiological Action of the Ammonium Bases derived from Atropia and Conia. 4to. pp. 47.

THIS paper records an adventurous flight over regions previously beyond the most advanced outposts of scientific inquiry. Its learned authors have described their glimpses of possible generalizations with much moderation of statement; thus proving that they join to a spirit of zealous and ingenious research the judgment which imposes proper bounds upon theoretical speculation. Their chemico-physiological results are exceedingly curious, and certainly suggest the existence of a law, the definite enunciation of which is, however, wisely deferred until its scope and limitations become more evident. Their work has no immediate relation to therapeutics, but may eventually produce some valuable contributions to our materia medica.

There can be no reasonable doubt that a relation exists between the physiological action of a substance and its chemical composition and constitution, understanding by the latter term, the mutual relations of the atoms. Some observers have endeavored to connect physiological action with composition, looking for the cause of the peculiar action in the presence or proportion of particular elements. It is a sufficient answer to this to point to the totally different powers of many isomeric or polymeric bodies, as glycocoll and nitrite of ethyl; or to instance kakodylic acid, which is inert, although perfectly soluble, and containing more than 54 per cent. of metallic arsenic. *Composition* alone is an insufficient explanation: *constitution* must also be taken into account.

The direct way of investigation is impracticable, because the data are incomplete. *Constitution* involves not only *structure*, that is, the order of building up, or the arrangement of the equivalents in atoms and in mutually united pairs, but also what we may call the *potential* of each pair, or the amount of energy required to separate the equivalents from each other. The potential depends upon the structure, but cannot always be found from it, or expressed numerically; and we are ignorant of the structure itself in many cases, particularly of the alkaloids. It therefore occurred to Drs. Brown and Fraser that an indirect method might be found, resembling the mathematical *calculus of finite variations.* This consists in performing upon a substance a chemical operation which shall introduce a known change into its constitution, and then examining and comparing the physiological action of the substance before and after the change. This is capable of algebraic expression: thus, $C =$ original constitution; $P =$ physiological action. After the operation C becomes $C+dC$, and P, $P+dP$. Here dC, P, and $P+dP$ are known, and by applying the method to a sufficient number of substances, and by varying dC, we might hope to determine what function P is of C. This would be a strictly mathematical method